

Double Angle Identities

$$\cos 2A = \cos (A+A) \rightarrow \cos A \cos A - \sin A \sin A$$

$$\rightarrow \boxed{\cos^2 A - \sin^2 A}$$

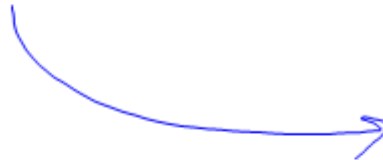
$$(1 - \sin^2 A) - \sin^2 A$$

$$\rightarrow \boxed{1 - 2\sin^2 A}$$

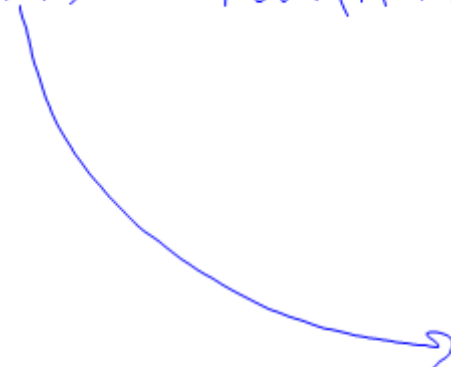
$$\cos^2 A - (1 - \cos^2 A)$$

$$\rightarrow \boxed{2\cos^2 A - 1}$$

$$\sin(2A) = \sin(A+A) = \sin A \cos A + \cos A \sin A$$


$$\boxed{= 2 \sin A \cos A}$$

$$\tan(2A) = \tan(A+A) \Rightarrow \frac{\tan A + \tan A}{1 - \tan A \tan A}$$


$$\boxed{= \frac{2 \tan A}{1 - \tan^2 A}}$$

① Given $\cos x = \frac{3}{5}$ and $\sin < 0$, find $\sin 2x$, $\cos 2x$, $\tan 2x$

② Find the value of the 6 trig functions if $\cos 2\theta = \frac{4}{5}$ and θ is in quadrant 2.

③ verify the identity

$$\cot x \sin 2x = 1 + \cos 2x$$

Read 5.5 examples 1-3

Do #1-8, 11, 12, 17-20